e, eye; *p e*, pupal eye; *f*, finger-shaped processes; *f f*, fore foot; *h f*, hinder foot; *p f*, pupal feet; *s*, stomach; *pv*, proventriculus; *mx*, maxillæ; *md*, mandibles; *p*, palpi; *ms*, muscles; *tr*, tracheæ; *f b*, fatty bodies; *t f*, terminal filament; *o*, ova; *s b*, stigmatic branchiæ; *c b*, chitinous band; *g o*, genital orifice; *a o*, anal orifice; *pn*, pronotum; *w*, wing.

Fig. 5. A portion of an ovum. The blastoderm has acquired several layers; and in its mass are the polar cells, the diameter of which is 0·012 millim.

Fig. 6. The same, rather later; the polar cells have separated into two groups: *a*, furrow.

Fig. 7. The developing ovary removed from a larva contracted in folds; diameter 0·031 millim.: *e c*, embryonal cells; *n*, nucleus of the ovarian tube.

Fig. 8. An ovary removed from a perfectly developed larva; six embryonic ovarian tubes are visible in it, containing nuclei; diameter 0·057 millim.: *e c*, embryonal cells; *o t*, ovarian tubes; *n*, nucleus.

Fig. 9. Ovarian tube from a young larva: *v c*, vitelligenous cells; *ep*, epithelium; *n*, nucleus.

Fig. 10. Part of an ovarian tube (magn. 475 diams.). The left side of this figure represents the object seen on the surface, and the right side the optical transverse section. The ovum (*o*) will soon be detached. The vitelligenous cells (*v c*) are only indicated, and are too small; *t f*, terminal filament; *t c*, terminal chamber; *ep*, epithelial cells; *ep'*, epithelial cells as seen at the surface; *g c*, germ-chamber; *o d*, oil-drops; *g v*, germinal vesicle; *g s*, germinal spot; *v c*, vitelligenous cells; *v*, vitellus. Diameter of the ovum (*o*) 0·085 millim., of the germinal vesicle 0·0432 millim., of the vitelligenous cells 0·0250 millim., of the epithelial cells 0·0224 millim., of the germinal spot 0·0078 millim.; length of the germ-chamber 0·044 millim.; length of the terminal chamber 0·922 millim., diameter of its nuclei 0·0085 millim.; thickness of the terminal filament 0·0060 millim.; diameter of the oil-drops 0·0048 millim.

Fig. 11. Portion of an ovarian tube at the moment of its division into chambers, the contents being already divided, and the nucleus in course of division; magn. 630 diams. The lettering as in fig. 10.

Fig. 12. A perfectly developed ovum in which the germinal vesicle is visible, preserved in glycerine; diameter of the germinal vesicle (*g v*) 0·045 millim.: *l*, lobule surrounding the micropyle.

XIV.—*Notes on the* Berardius *of New Zealand.*

By Dr. J. E. Gray, F.R.S. &c.

Dr. Hector kindly sent me an early impression of Dr. Knox's and his own paper on the *Ziphiidæ*, illustrated with five plates, which is to be published in the third volume of the 'Transactions of the New-Zealand Institute.' It contains a figure of the animal of *Berardius*, various parts of the skeleton, and the details of two skulls. From it I give the following character to the animal of this genus, which was previously known only

from the skull; and the two skulls evidently belong to two different species.

Berardius.

Head beaked; the beak short, thick; forehead rounded; pectoral fins moderate, acute, on the sides of the chest; dorsal fin small, rather more than two-thirds of the length from the head; tail forked; cervical vertebræ separate. The scapula triangular, broader than long, with very long coracoid and acromion processes, both flat and truncated at the end; the forearm-bone about as long as the upper one, separated by a straight groove. (See Trans. New Zeal. Instit. vol. iii. tab. 13.)

Dr. Hector and Dr. Knox describe and figure two skulls of this genus.

The skull of the third or larger specimen killed at the entrance of Port Nicholson in January 1870, which was 27 feet long.

Dr. Hector gives the length of the skull as 59½ inches, of the dental groove 15 inches, of lower jaw 43 inches; width at notch 14·5 inches, at orbits 24·5 inches, of blowhole 7 inches, of nose 5 inches; height at occiput 19·5 inches.

According to the figure the brain-cavity of this specimen is very short, and the maxillary bones are much expanded on the sides; the beak is much broader than in the other figure; it is broad at the base, and gradually attenuated to the tip. The intermaxillary bones are broad, linear, and flat, the beak being very little more than two-thirds the entire length of the head; the intermaxillaries and vomer, as seen in the palate, are broad, lanceolate. The lower jaw is gradually rounded on the front half of the lower margin, without any distinct gonys; the symphysis is short, not quite one quarter the entire length of the jaw. This skull is figured on the 16th and 17th plates of the Trans. of the New Zeal. Instit. vol. iii. p. 128.

These figures agree with Duvernoy's and Gervais's figure of the skull of *Berardius Arnuxii* (Ostéog. Cetacés, tab. 23). Dr. Hector observes that the form of the tooth is more tumid than in the other specimens; but the variety is probably due to age, this animal being said to be full-grown.

The smaller or second specimen of Dr. Knox was killed in Tatai Bay, Cook's Straits, in January 1866. It was only 9¼ feet long; its skull is figured on tabs. 14 and 15, and is said to be 2 feet long. The figure shows that it has a very slender beak, three-fifths the entire length of the head; the expansion of the maxillary bone is great, and the nostrils or blowers are hooded behind by the development of the inter-

maxillaries. The beak is rather broad at the base, but suddenly narrows and becomes one-third of its width, and tapers to a small point; the intermaxillaries and vomer, as seen in the palate, are linear. The lower jaw is attenuated in front, with a regular, angular gonys under the hinder part of the symphysis, which is elongate and one-third the entire length of the jaw in extent.

The differences of the skull are too great to depend on the age or sex of the specimens; and there is very great difference of size between the two animals, the one being 27 and the other only 9 feet long; and the most perfectly developed skull belongs to the smaller specimen. I therefore propose to give the name of *Berardius Hectori* to the smaller specimen of Dr. Hector, figured on plates 14 and 15 of the Trans. New Zeal. Inst. vol. iii. p. 128.

This skull has some affinity to the typical *Ziphius*, but is at once known to be a *Berardius* by the anterior position of the teeth.

P.S. Dr. Hector, in a note accompanying the third volume of the 'Transactions of the New Zealand Institute,' just received, observes:—"It is curious that the most commonly found Cetacean bone in the old alluvial deposit is the skull of *Berardius*, although now so rare. I have seen six subfossil, and only heard of three in the recent state, including that mentioned by Dr. Haast and the one that is, or was, in Paris. They are usually dug up and sent as Moa skulls! Not long ago I was made referee in a controversy on this subject between the newspapers."

XV.—*On* Euchelymys, *a new Genus and two new Species of Australian Freshwater Tortoises.* By Dr. J. E. Gray, F.R.S. &c.

In my paper on "Australian Tortoises" in the 'Proceedings of the Zoological Society,' 1856, p. 371, and in the 'Annals and Magazine of Natural History' for 1863, vol. xii. p. 98, I mentioned there being two distinct varieties of *Chelymys macquaria*, both having a distinct nuchal shield.

Having had occasion to examine some specimens of Tortoises in spirits in the Museum for the purpose of identification, I found that what had been considered a variety of *C. macquaria* were provided with a distinct pair of beards in front of the chin; and on more carefully examining the stuffed specimen we received in 1856 from Mr. Stutchbury, I found it